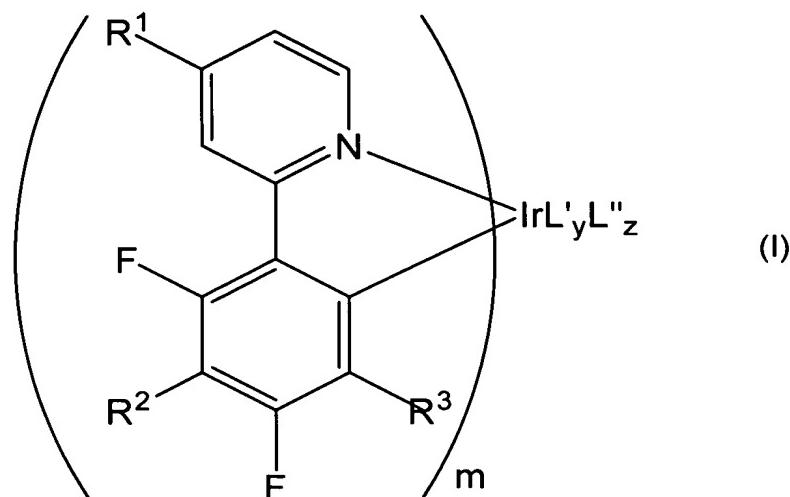


CLAIMS

What is claimed is:

1. An organic electronic device comprising at least one layer comprising a compound having Formula I

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wherein:

R<sup>1</sup> = H, R<sup>4</sup>, OR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>

R<sup>2</sup> = H, C<sub>n</sub>F<sub>2n+1</sub>, C<sub>n</sub>F<sub>2n+1</sub>SO<sub>2</sub>, COOR<sup>4</sup>, CN

10

R<sup>3</sup> = H, C<sub>n</sub>F<sub>2n+1</sub>, C<sub>n</sub>F<sub>2n+1</sub>SO<sub>2</sub>, COOR<sup>4</sup>, CN

R<sup>4</sup> is the same or different at each occurrence and is H,

alkyl, aryl, or adjacent R<sup>4</sup> groups can join together to form a 5- or 6-membered ring,

L' = a bidentate ligand and is not a phenylpyridine, phenylpyrimidine, or phenylquinoline;

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L" = a monodentate ligand, and is not a phenylpyridine, and phenylpyrimidine, or phenylquinoline;

m = 1, 2 or 3,

n is an integer from 1 through 20,

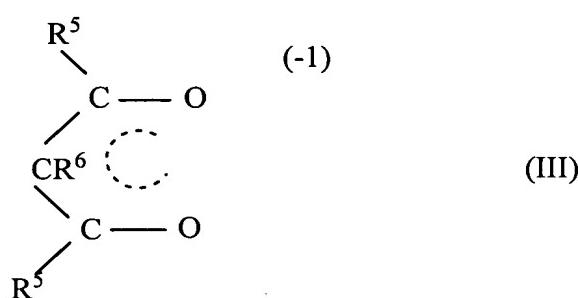
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y = 0, 1 or 2, and

z = 0 or an integer from 1 through 4,

with the proviso that the compound is charge neutral and the iridium is hexacoordinate.

2. The device of Claim 1 wherein R<sup>2</sup> and R<sup>3</sup> are independently selected from H, CF<sub>3</sub>, C<sub>2</sub>F<sub>3</sub>, n-C<sub>3</sub>F<sub>7</sub>, i-C<sub>3</sub>F<sub>7</sub>, C<sub>4</sub>F<sub>9</sub>, CF<sub>3</sub>SO<sub>2</sub>, COOR<sup>4</sup> and CN.
3. The device of Claim 1 wherein m = 3, y = 0, and z = 0.
- 5     4. The device of Claim 1 wherein m = 2, y = 1, z = 0, and L' is a monoanionic bidentate ligand.
- 5     5. The device of Claim 1 wherein m = 1, y = 1, and z = 2.
- 5     6. The device of Claim 5 wherein at least one L" is a hydride.
- 5     7. The device of Claim 4 wherein L' has a coordinating group
- 10 selected from amino, imino, amido, alkoxide, carboxylate, phosphino, and thiolate.
- 15     8. The device of Claim 4 wherein L' is selected from β-enolate ligands, N-analogs of β-enolate ligands, S-analogs of β-enolate ligands, aminocarboxylate ligands, iminocarboxylate ligands, salicylate ligands, hydroxyquinolinate ligands, S-analogs of hydroxyquinolinate ligands, phosphinoalkoxide ligands, and a ligand coordinated through a carbon atom that is part of an aromatic group.
- 15     9. The device of Claim 8 wherein L' is a β-enolate having Formula III:



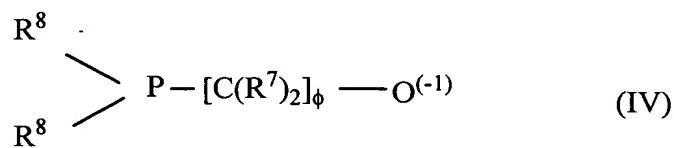
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where

25     R<sup>5</sup> is the same or different at each occurrence and is selected from hydrogen, halogen, substituted or unsubstituted alkyl, aryl, alkylaryl and heterocyclic groups, or adjacent R<sup>5</sup> groups can be joined to form five- and six-membered rings, which can be substituted, and

R<sup>6</sup> is selected from alkyl, aryl, alkylaryl, heterocyclic groups, and fluorine.

30     10. The device of Claim 8 wherein L' is a phosphinoalkoxide having Formula IV:



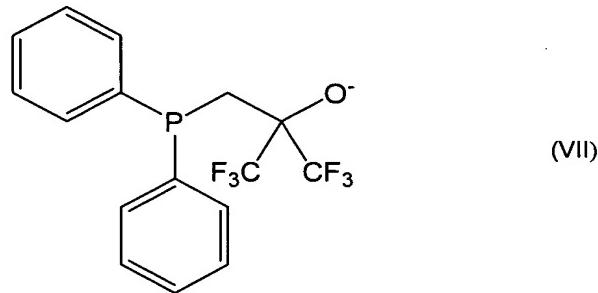
where

$\text{R}^7$  can be the same or different at each occurrence and is selected from H and  $\text{C}_n(\text{H}+\text{F})_{2n+1}$ ,

5       $\text{R}^8$  can be the same or different at each occurrence and is selected from  $\text{C}_n(\text{H}+\text{F})_{2n+1}$  and  $\text{C}_6(\text{H}+\text{F})_5$ , or  $\text{C}_6\text{H}_{5-n}(\text{R}^9)_n$ ,  
 $\text{R}^9 = \text{CF}_3, \text{C}_2\text{F}_5, n\text{-C}_3\text{F}_7, i\text{-C}_3\text{F}_7, \text{C}_4\text{F}_9, \text{CF}_3\text{SO}_2$ , and  
 $\phi$  is 2 or 3.

11. The device of Claim 8 wherein L' has Formula VII:

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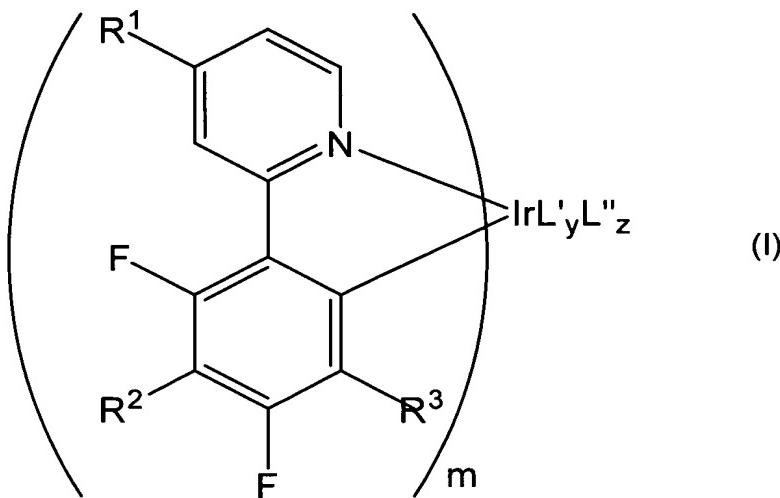
12. The device of Claim 1 wherein the at least one layer is a light-emitting layer.

13. The device of Claim 12 wherein the light-emitting layer further 15 comprises a diluent.

14. The device of Claim 13 wherein the diluent comprises a polymeric or small molecule material, or a mixture thereof.

15. A compound having Formula I

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wherein:

R¹ = H, R⁴, OR⁴, N(R⁴)₂

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R² = H, CₙF₂ₙ₊₁, CₙF₂ₙ₊₁SO₂, COOR⁴, CN

R³ = H, CₙF₂ₙ₊₁, CₙF₂ₙ₊₁SO₂, COOR⁴, CN

R⁴ is the same or different at each occurrence and is H, alkyl, aryl, or adjacent R⁴ groups can join together to form a 5- or 6-membered ring,

10

L' = a bidentate ligand and is not a phenylpyridine, phenylpyrimidine, or phenylquinoline;

L'' = a monodentate ligand, and is not a phenylpyridine, and phenylpyrimidine, or phenylquinoline;

m = 1, 2 or 3,

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n is an integer from 1 through 20,

y = 0, 1 or 2, and

z = 0 or an integer from 1 through 4,

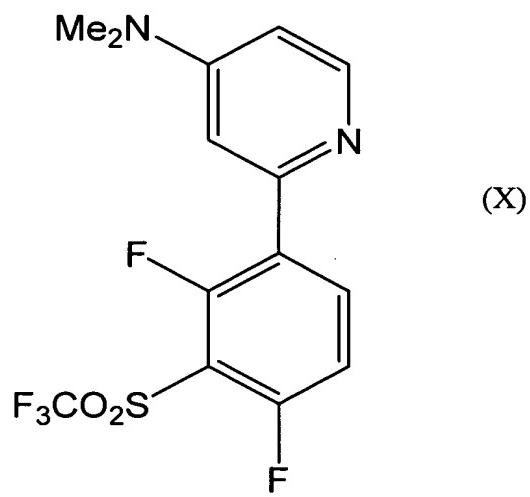
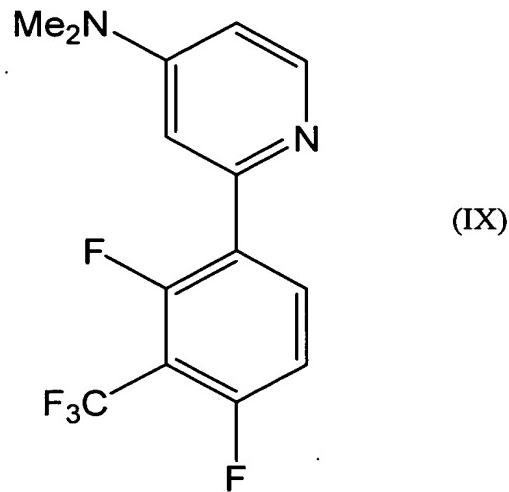
with the proviso that the compound is charge neutral and the iridium is hexacoordinate.

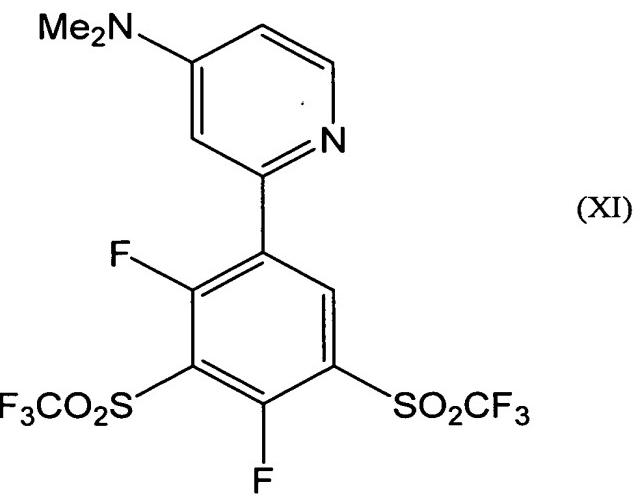
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16. A compound according to Claim 15, wherein R² and R³ in Formula I are independently selected from H, CF₃, C₂F₃, n-C₃F₇, i-C₃F₇, C₄F₉, CF₃SO₂, COOR⁴ and CN.

17. A compound selected from Formula IX, Formula X, Formula XI, and Formula XII:

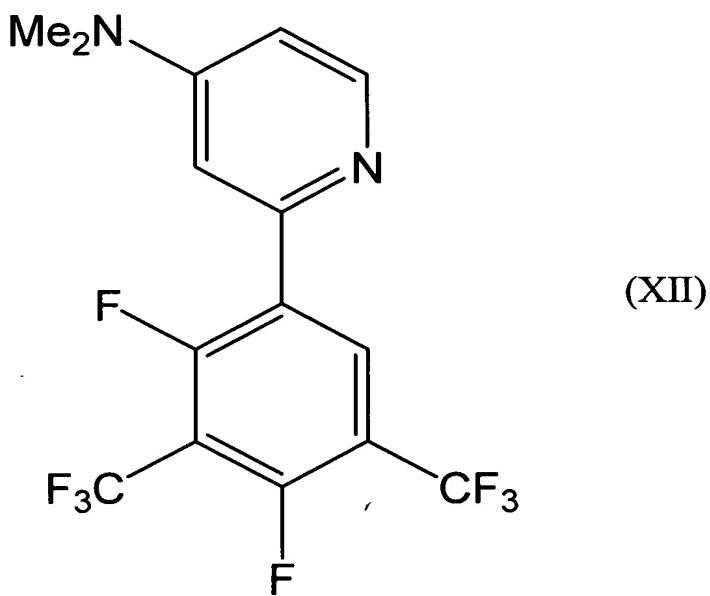
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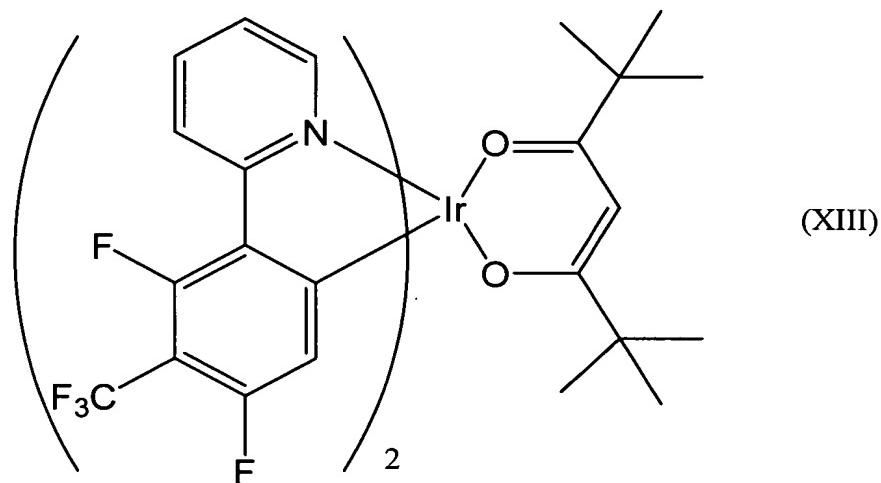
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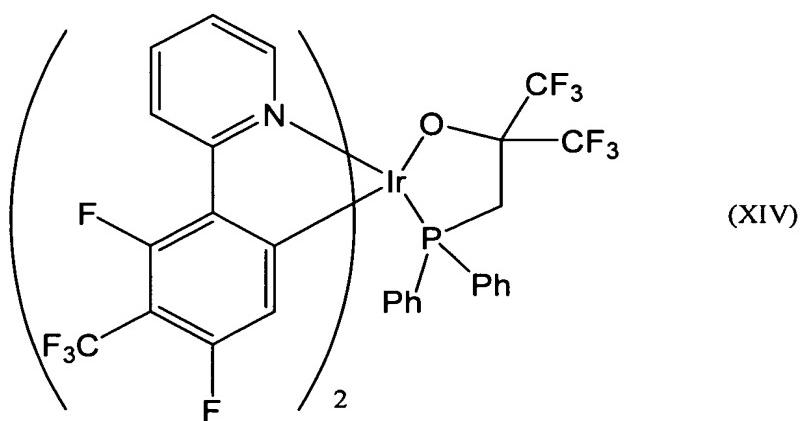


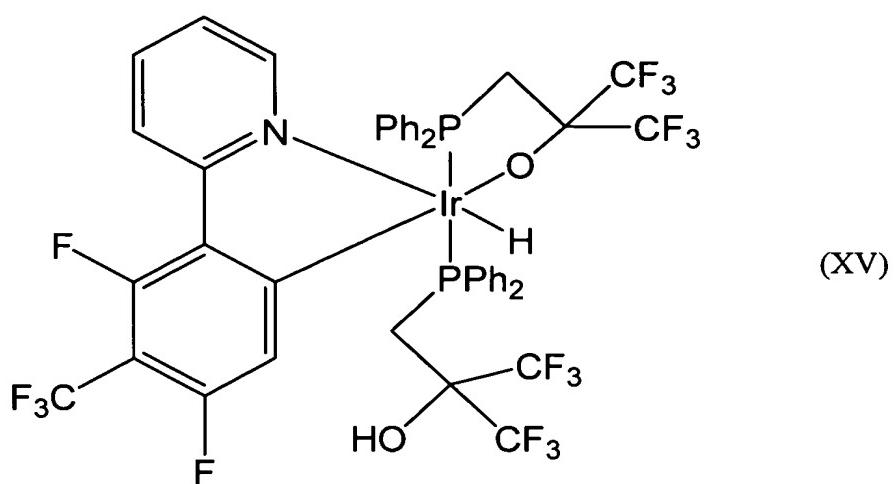
18. A compound having a structure selected from Formula XIII,  
Formula XIV, and Formula XV below:

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19. A compound having Formula VIII:

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